

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and following remarks.

By the foregoing amendment, claims 1, 5, 8, 9, 12 and 17 have been amended. Claim 2 was previously canceled. Thus, claims 1 and 3-17 are currently pending in the application and subject to examination.

In the Office Action mailed August 25, 2005, the Examiner rejected claims 5 and 12 under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 5 and 12 have been amended responsive to the rejection. If any additional amendment is necessary to overcome the objection and rejection, the Examiner is requested to contact the Applicant's undersigned representative.

The Examiner rejected claims 1, 4, 5, 8, 11 and 12 under 35 USC § 103(a) as being unpatentable over Applicant's Admitted Prior Art ("AAPA") in view of US Patent No. 5,087,964 to Hatta ("Hatta"), in view of US Patent No. 5,249,055 to Masuda et al. ("Masuda"), and in view of the Examiner's Official Notice; rejected claims 2, 3, 9, 10, 15 and 16 under 35 USC § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of the Examiner's Official Notice and further in view of US Patent No. 5,220,210 to Miwada ("Miwada"); rejected claims 6 and 13 under 35 USC § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of the Examiner's Official Notice and further in view of US Patent No. 6,078,685 to Kawai et al. ("Kawai") in further view of US Patent No. 5,773,814 to Phillips et al. ("Phillips"); and rejected claims 7 and 14 under 35 USC § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of the Examiner's Official

Notice, in view of Kawai in view of Phillips, and further view of US Patent No. 5,648,653 to Sakamoto et al. ("Sakamoto"). It is noted that claim 2 has been canceled and claims 1, 5, 8 and 12 have been amended. To the extent that the rejections remain applicable to the claims currently pending, Applicant hereby traverses the rejections, as follows.

The Applicants submit that none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of a plurality of bonding pads formed on the surface of said semiconductor substrate outer than said at least one photodiode group with respect to the longitudinal direction, each of said bonding pads having an exposed central surface area; a plurality of metal lines formed on the surface of said semiconductor substrate, each of said metal lines having an end connected to one of said bonding pads and another end connected to said peripheral circuit or said charge transfer element; a light-suppressing layer formed above said semiconductor substrate and covering a peripheral area of each of said plurality of photodiodes; and a passivation layer formed to cover an outer surface area of each of said bonding pads, as recited in claim 1, as amended.

For at least this reason, the Applicants submit that claim 1, as amended, is allowable over the cited prior art. As claim 1 is allowable over the cited prior art, the Applicants submit that claims 3-7 and 17, which depend from allowable claim 1, are likewise allowable over the cited prior art.

Similarly to as discussed above with regard to claim 1, the Applicant submits that claim 8 is allowable over the cited prior art at least because none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of a linear image sensor including, among other features, a linear image sensor chip having at

least a plurality of bonding pads formed on the surface of said semiconductor substrate outer than said at least one photodiode group with respect to the longitudinal direction of said semiconductor substrate, each of said bonding pads having an exposed central surface area, and a passivation layer formed to cover an outer surface area of each of said bonding pads and of each of said bonding pads, as recited in claim 8, as amended.

As claim 8 is allowable over the cited prior art, the Applicants submit that claims 9-16, which depend from allowable claim 8, are likewise allowable over the cited prior art.

The Applicants further submit that, with regard to the rejection of claims 2, 3, 9, 10, 15 and 16 under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of the Examiner's Official Notice, and further in view of Miwada, the Examiner has not yet set forth a *prima facie* case of obviousness. The PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 U.S.P.Q.2nd 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) (prior art could not be

turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002). Both the case law of the Federal Circuit and the PTO itself have made it further clear that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." Id., at 270 F.2d at 813, 123 USPQ at 352.).

In the Office Action, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to, for example, "locate the bonding pads outer a peripheral circuit section as taught by Miwada, with the configuration as taught in claim 1 in which the peripheral circuit section is disposed outer an image pickup section, with respect to the longitudinal direction, in order to allow for further reduction in the width of the elongated substrate." Office Action, p. 14.

However, the Applicants respectfully submit that Miwada teaches away from Hatta. For example, Miwada teaches at col. 1, lines 10-22, "[i]n conventional linear image sensors, an image sensor chip, which is generally formed of a semiconductor substrate, has an active area or circuit region including a number of photosensitive elements arranged and aligned in a single straight array...Namely, the circuit region is extremely oblong. On the other hand, the required number of bonding pads to be

formed on the chip is relatively small. Therefore, if the bonding pads were located and distributed at a periphery of the circuit region, a substantial invalid or empty area inevitably occur [sic] in a peripheral region of the circuit region [emphasis added].” In other words, Miwada teaches away from locating and distributing bonding pads “at a periphery of the circuit region,” in order to avoid “a substantial invalid or empty area” which otherwise “inevitably occur[s] in a peripheral region of the circuit region.” Id.

Hatta teaches a linear image sensor in which bonding pads 15 are formed in a chip area 14, and are distributed at a periphery of the circuit region 21. For at least this reason, the Applicants submit that Miwada teaches away from Hatta, and vice versa. Accordingly, the Applicants submit that there is no motivation to combine these references as suggested by the Examiner in the outstanding Office Action, and any rejection based on such combination is improper.

For this additional reason, withdrawal of the rejection of claims 2, 3, 9, 10, 15 and 16 is respectfully requested.

CONCLUSION

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300, referencing docket number 107317-00032.

Respectfully submitted,

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